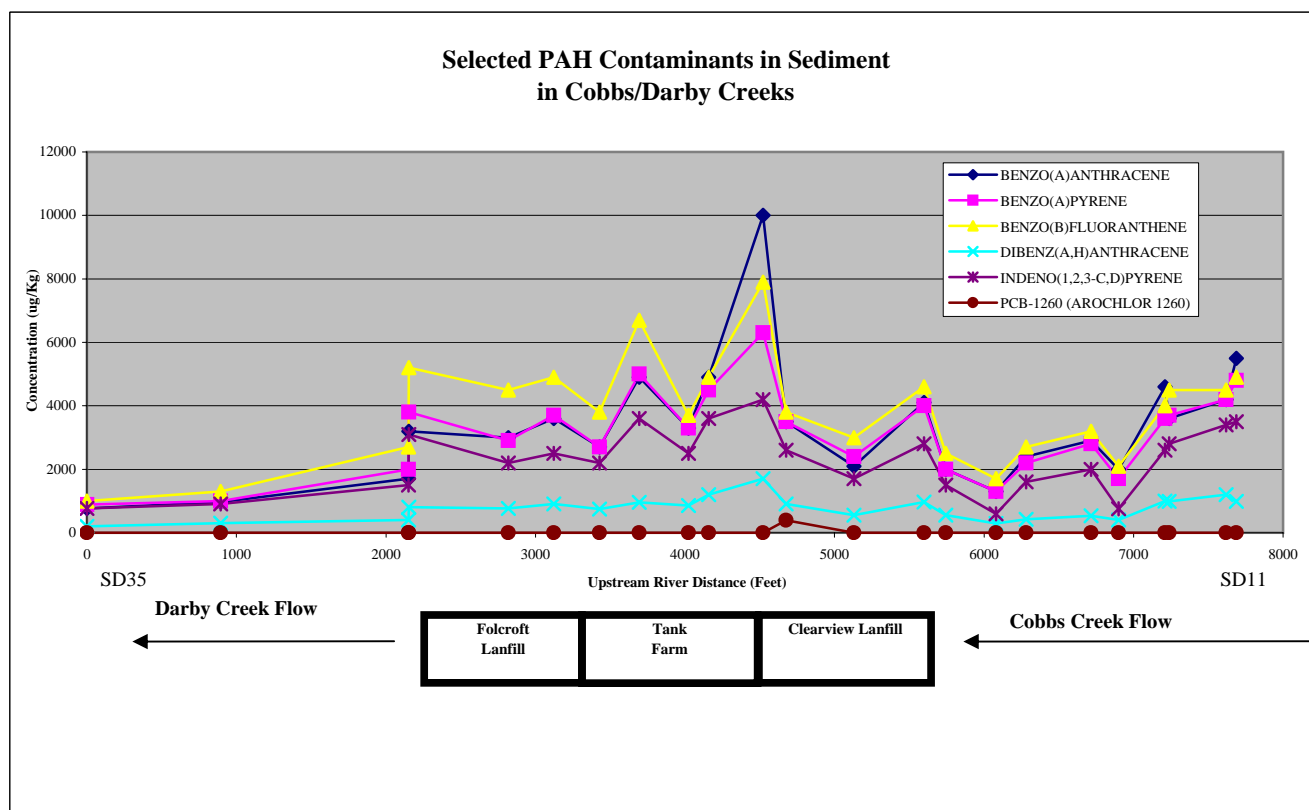
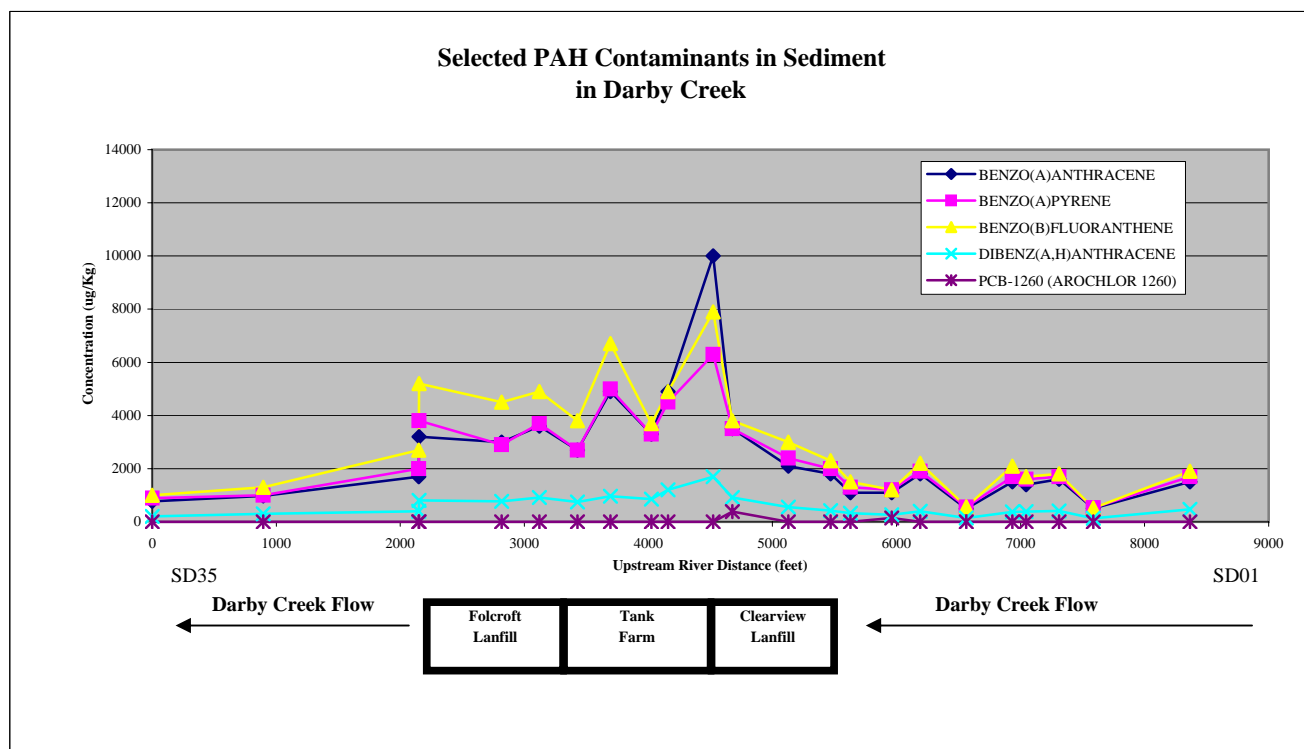
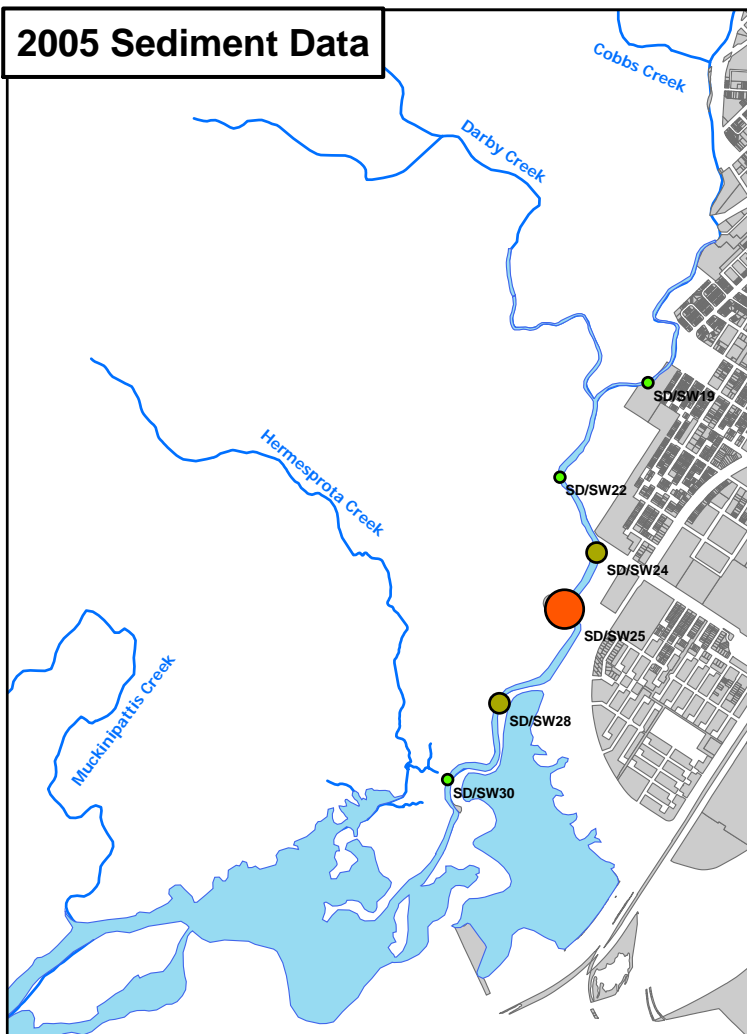


**Figure 4-6**  
**Selected PAH Concentrations in Sediment along Darby and Cobbs Creeks**  
**(2002 Sampling Results)**  
**Lower Darby Creek Area**

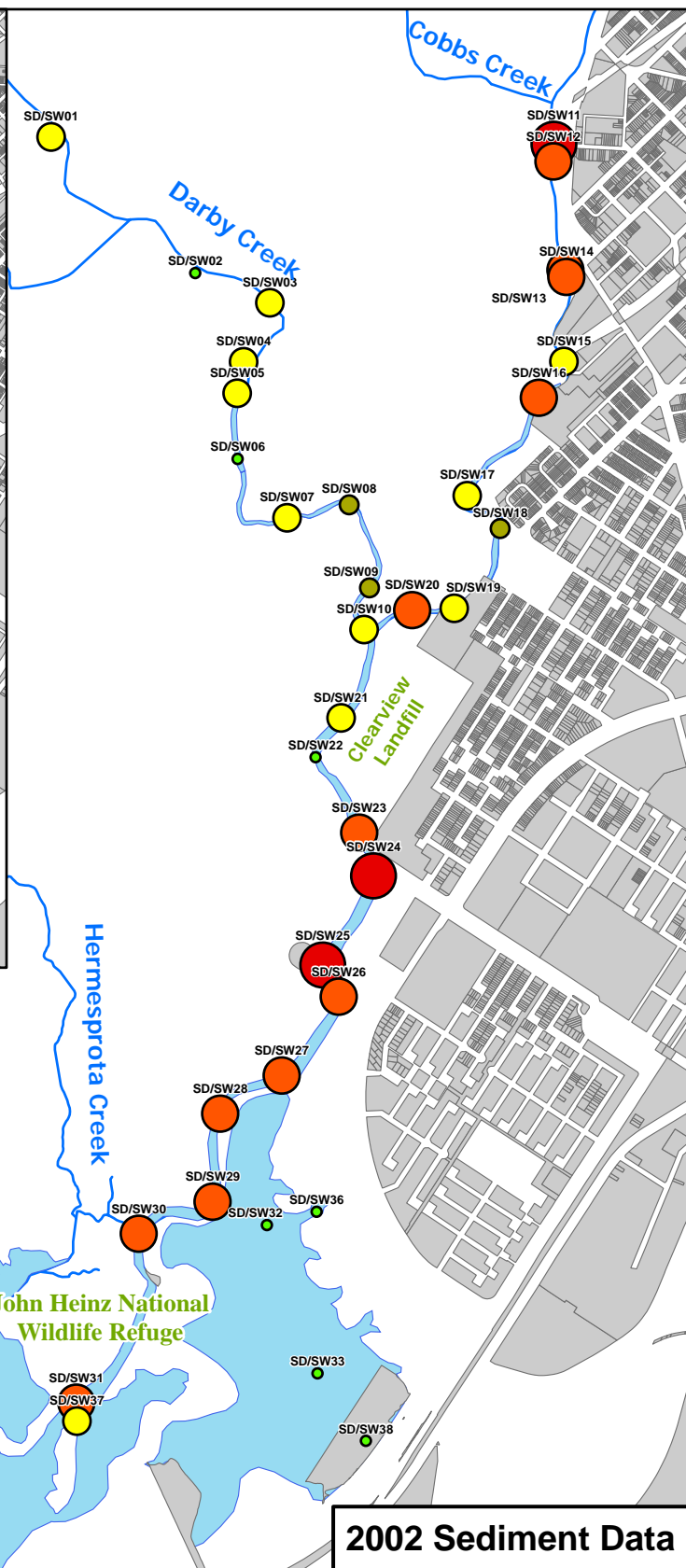


## 2005 Sediment Data



### Total PAHs Include:

acenaphthene  
anthracene  
benzo(a)anthracene  
benzo(a)pyrene  
benzo(b)fluoranthene  
chrysene  
dibenz(a,h)anthracene  
fluoranthene  
fluorene  
indeno(1,2,3-C,D)pyrene  
naphthalene  
pyrene



## 2002 Sediment Data

- 1500 - 8000  $\mu\text{g/Kg}$
- 8000 - 16000  $\mu\text{g/Kg}$
- 16000 - 32000  $\mu\text{g/Kg}$
- 32000 - 64000  $\mu\text{g/Kg}$
- 64000 - 128000  $\mu\text{g/Kg}$

0 1,000 2,000 4,000 ft.

1 inch equals 2,000 feet

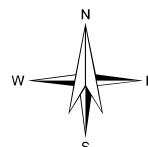


**Tetra Tech Delaware**

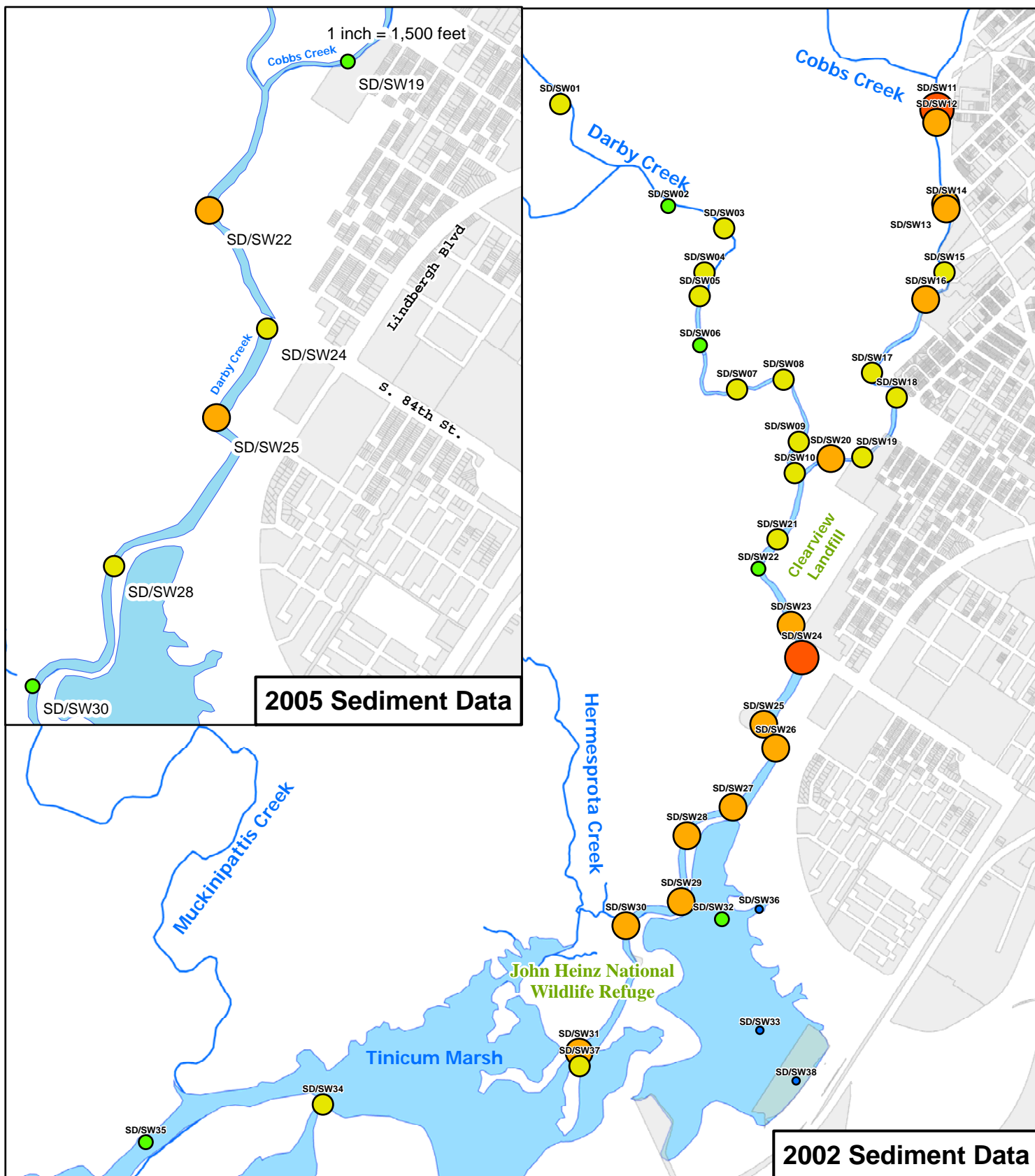
Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
[www.tetrattech-de.com](http://www.tetrattech-de.com)  
[www.tetrattech.com](http://www.tetrattech.com)

### Figure 4-7 Sediment Sampling Results

Total Polycyclic Aromatic  
Hydrocarbons (PAHs)  $\mu\text{g/Kg}$   
2002 - 2005 Data  
Clearview Landfill  
Philadelphia, PA



This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



N:\Projects\T40000\T47111 LowerDarby\Data\GIS\RI\_Report\_December\_2006\4-8 SD Benzo Anthracene.mxd

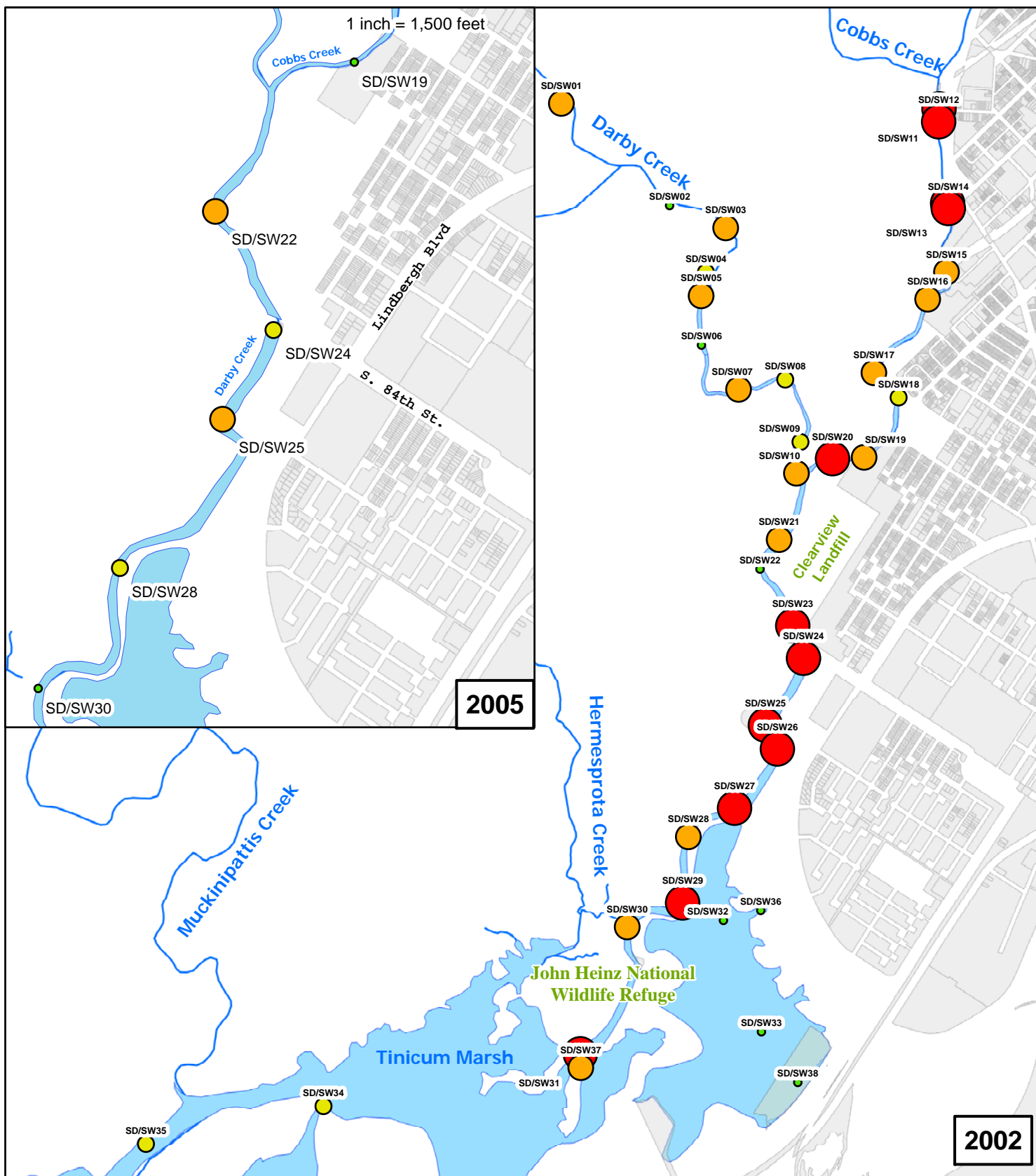
**Figure 4-8**

Sediment Sampling Results  
Benzo(a)Anthracene  $\mu\text{g/Kg}$   
2002 - 2005  
Clearview Landfill  
Philadelphia, PA

This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



**Tetra Tech Delaware**  
Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
[www.tetrattech-de.com](http://www.tetrattech-de.com)  
[www.tetrattech.com](http://www.tetrattech.com)



N:\Projects\T40000\T47111 LowerDarby\Data\GIS\RI\_Report\_December\_2006\4-9 SD Benzo Pyrene.mxd

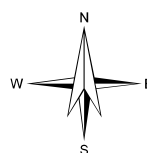
- 130 - 800 µg/Kg
- 800 - 1600 µg/Kg
- 1600 - 3200 µg/Kg
- 3200 - 6400 µg/Kg

0 1,000 2,000 4,000 Feet

1:24,000 1 inch = 2,000 feet



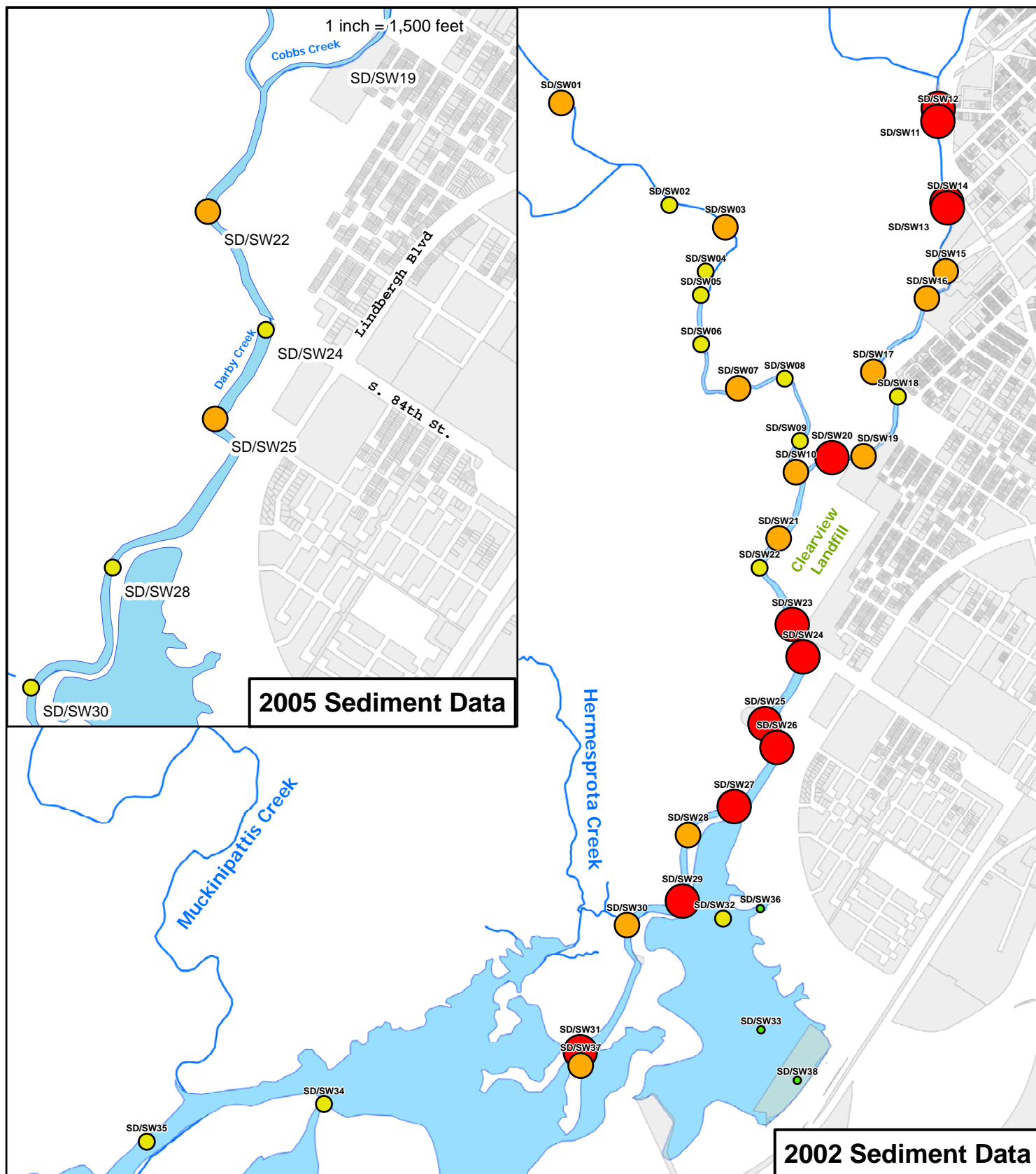
**Tetra Tech Delaware**  
 Phone: (302) 738-7551  
 Toll Free: (800) 462-0910  
[www.tetrattech-de.com](http://www.tetrattech-de.com)  
[www.tetrattech.com](http://www.tetrattech.com)



**Figure 4-9**  
 Sediment Sampling Results  
*Benzo(a)Pyrene* µg/Kg  
 2002 - 2005  
 Clearview Landfill  
 Philadelphia, PA

This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.





N:\Projects\T40000\T47111 LowerDarby\Data\GIS\RI\_Report\_December\_2006\4-10 SD dibenz(a,h)anthracene.mxd

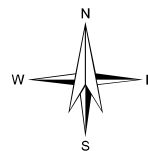
- Non - Detect
- < 392 µg/Kg
- 392 - 800 µg/Kg
- 800 - 1700 µg/Kg

0 1,000 2,000 4,000 Feet

1:24,000 1 inch = 2,000 feet

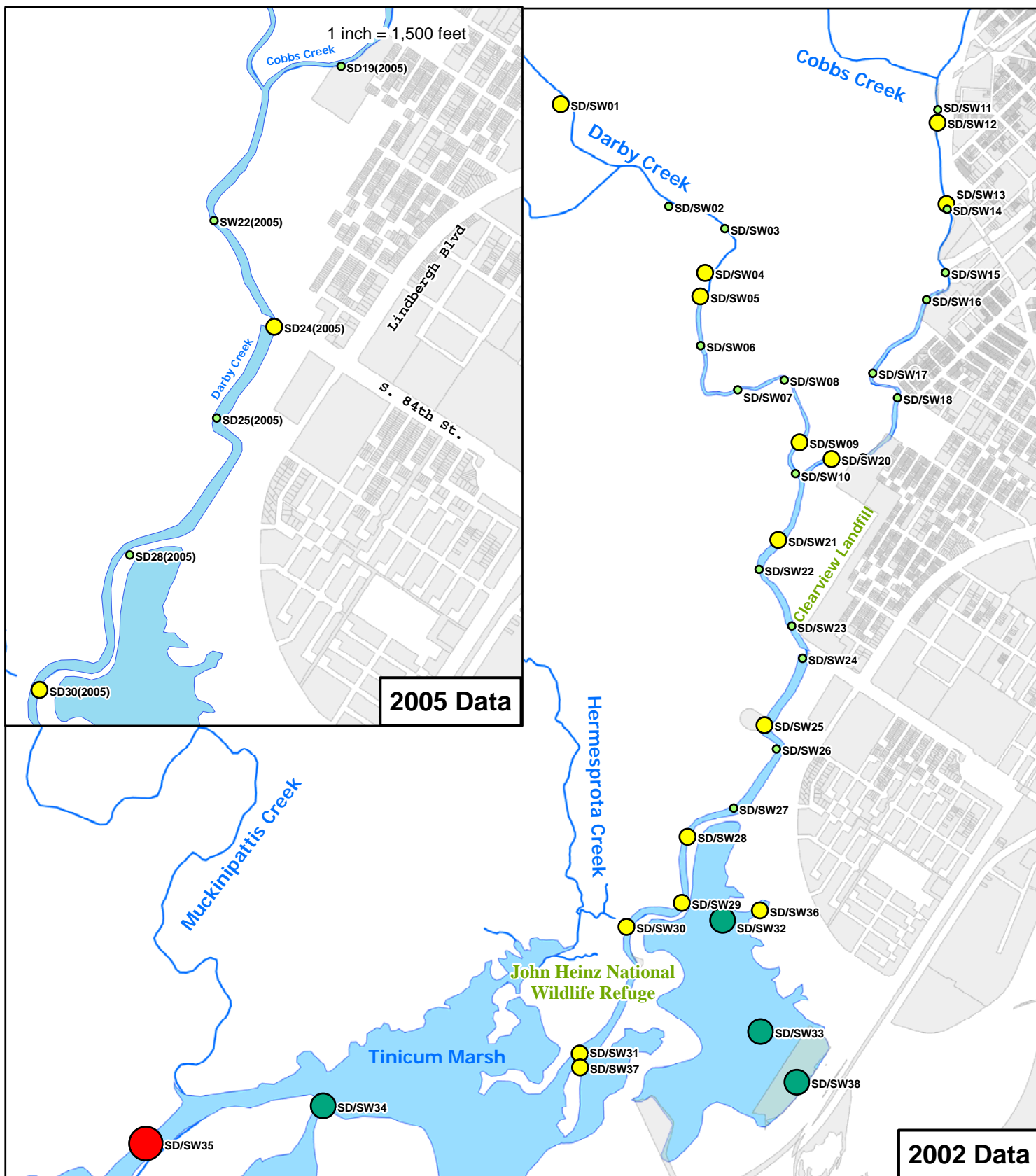


**Tetra Tech Delaware**  
 Phone: (302) 738-7551  
 Toll Free: (800) 462-0910  
[www.tetrattech-de.com](http://www.tetrattech-de.com)  
[www.tetrattech.com](http://www.tetrattech.com)



**Figure 4-10**  
 Sediment Sampling Results  
*Dibenz(a,h)Anthracene* µg/Kg  
 2002 - 2005  
 Clearview Landfill  
 Philadelphia, PA

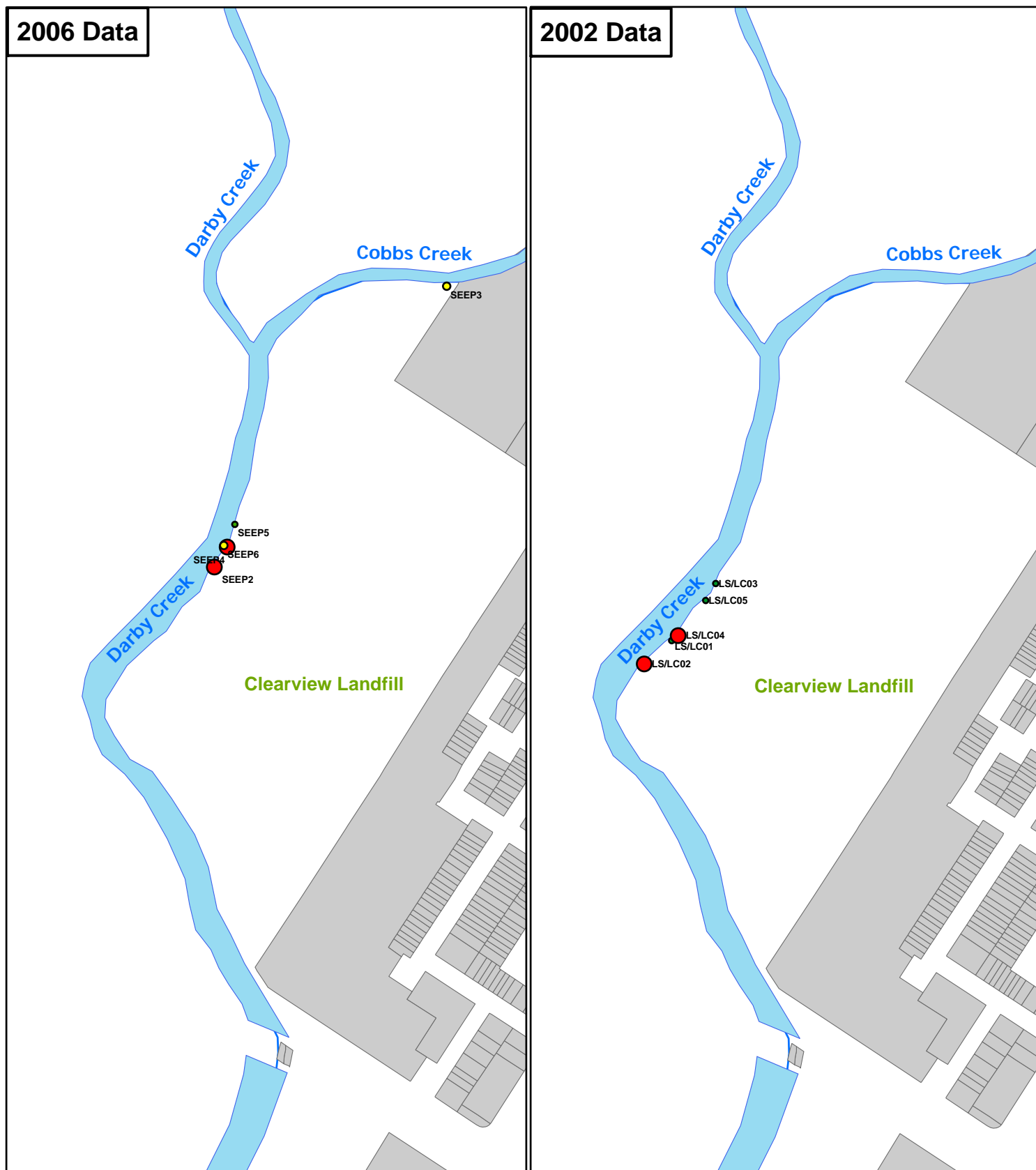
This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



N:\Projects\T40000\T47111 LowerDarby\Data\GIS\RI\_Report\_December\_2006\4-11 SD Arsenic.mxd

**Figure 4-11**  
Sediment Sampling Results  
Arsenic mg/Kg  
2002 - 2005  
Clearview Landfill  
Philadelphia, PA

This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



### Total PAHs

- < 10000 µg/Kg
- 10000 - 15000 µg/Kg
- 15000 - 20000 µg/Kg
- > 20000 µg/Kg

0 250 500 1,000 ft.

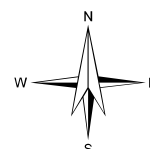
1 inch equals 500 feet



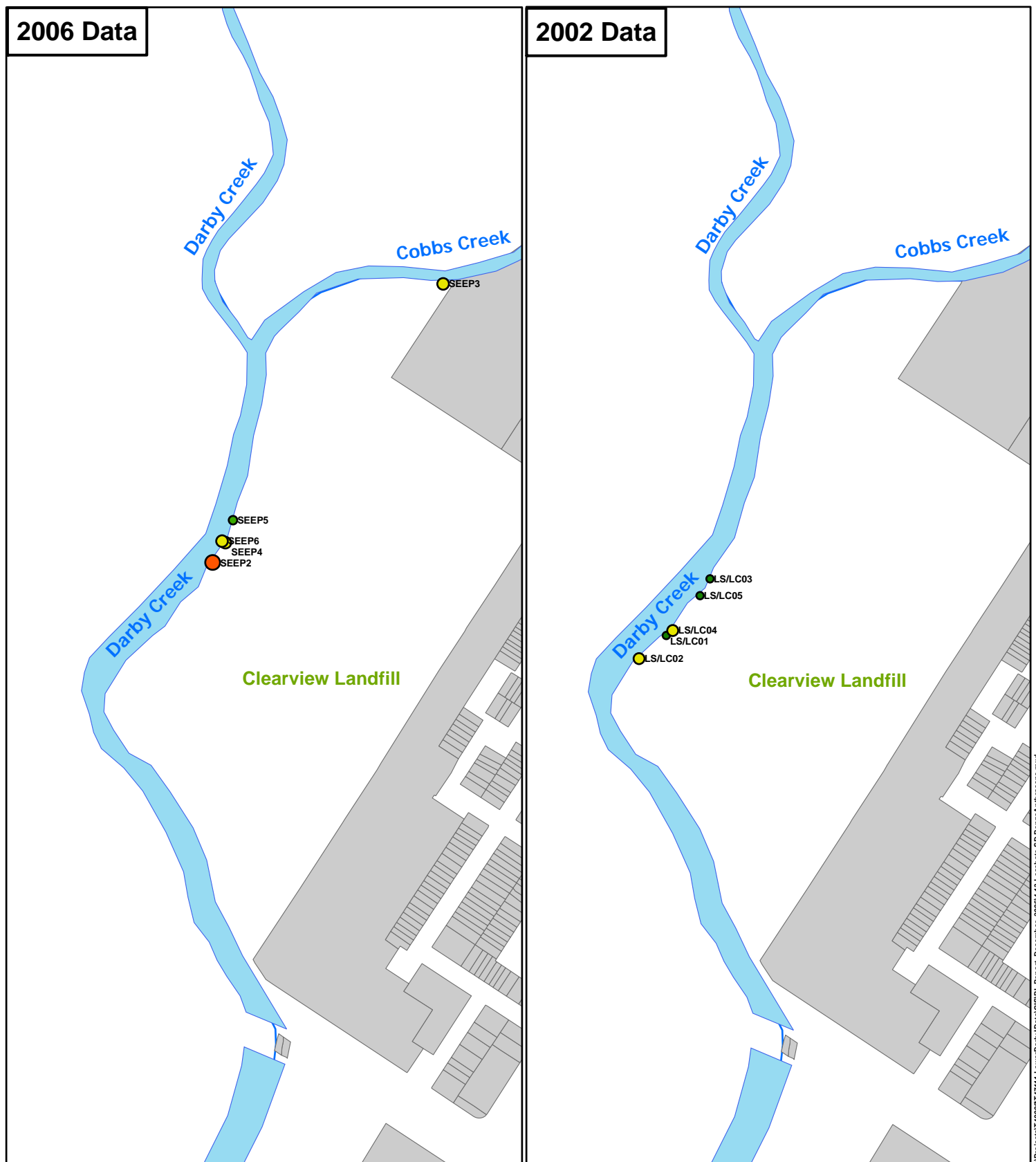
**Tetra Tech Delaware**  
 Phone: (302) 738-7551  
 Toll Free: (800) 462-0910  
[www.tetrattech-de.com](http://www.tetrattech-de.com)  
[www.tetrattech.com](http://www.tetrattech.com)

### Figure 4-12 Leachate Sediment Sampling Results

*Total Polycyclic Aromatic Hydrocarbons (PAHs) µg/Kg*  
 2002 - 2006 Data  
 Clearview Landfill  
 Philadelphia, PA



This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



N:\Projects\T400001747111 LowerDarby\GIS\BRI\_Report\_December\_2006\4-13 Leachate SD BenzoAnthracene.mxd

- 0 - 220  $\mu\text{g/Kg}$
- 220 - 875  $\mu\text{g/Kg}$
- 875 - 2500  $\mu\text{g/Kg}$
- 2500 - 5000  $\mu\text{g/Kg}$

0 250 500 1,000 ft.

1 inch = 500 feet

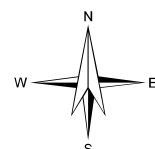


**Tetra Tech Delaware**  
 Phone: (302) 738-7551  
 Toll Free: (800) 462-0910  
[www.tetrattech-de.com](http://www.tetrattech-de.com)  
[www.tetrattech.com](http://www.tetrattech.com)

**Figure 4-13 Leachate Sediment Sampling Results**

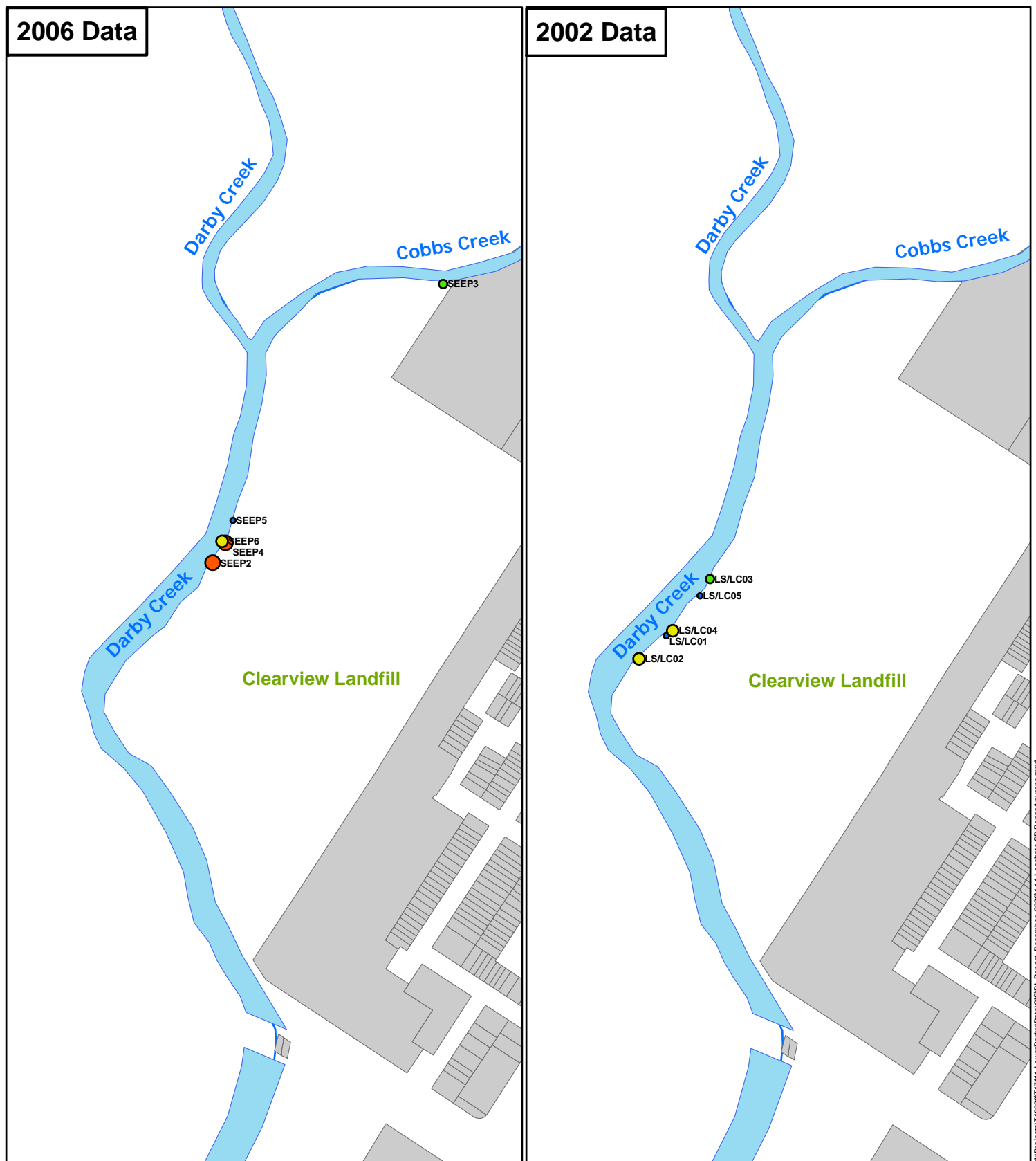
*Benzo(a)anthracene,  $\mu\text{g/Kg}$*

2002 - 2006 Data  
 Clearview Landfill  
 Philadelphia, PA



This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.





- 200 - 500  $\mu\text{g/Kg}$
- 500 - 1000  $\mu\text{g/Kg}$
- 1000 - 1500  $\mu\text{g/Kg}$
- > 1500  $\mu\text{g/Kg}$

0 250 500 1,000 ft.

1 inch = 500 feet



**Tetra Tech Delaware**

Phone: (302) 738-7551

Toll Free: (800) 462-0910

www.tetrattech-de.com

www.tetrattech.com

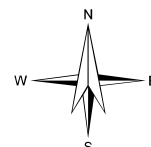
**Figure 4-14 Leachate Sediment Sampling Results**

**Benzo(a)pyrene,  $\mu\text{g/Kg}$**

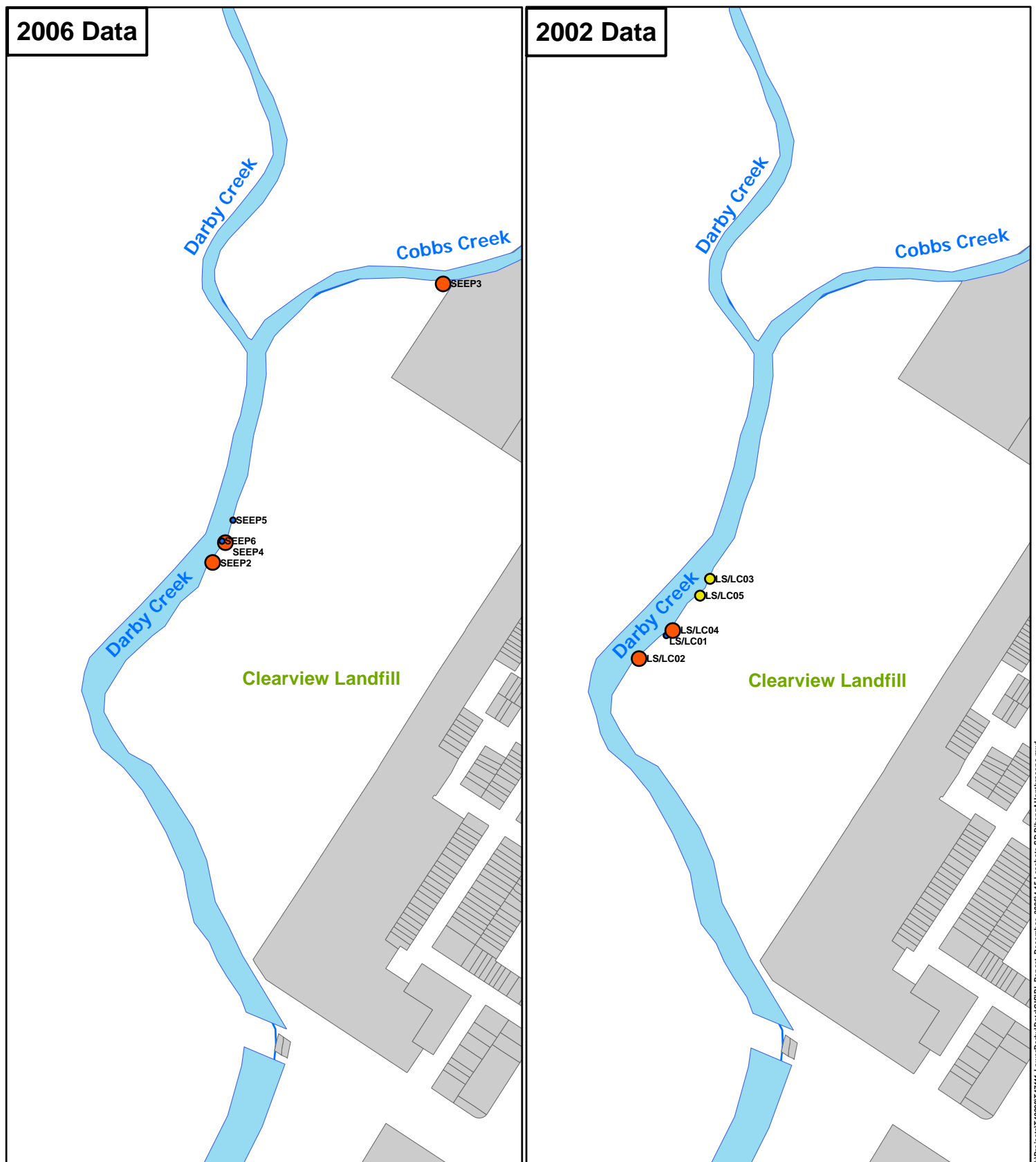
**2002 - 2006 Data**

**Clearview Landfill**

**Philadelphia, PA**



This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



**Figure 4-15 Leachate Sediment Sampling Results**

*Dibenz(a,h)anthracene, µg/Kg*

2002 - 2006 Data

Clearview Landfill

Philadelphia, PA

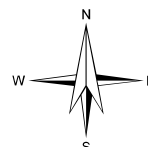
- < 100 µg/Kg
- 100 - 200 µg/Kg
- 200 - 500 µg/Kg

0 250 500 1,000 ft.  
1 inch = 500 feet



**Tetra Tech Delaware**

Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
[www.tetrattech-de.com](http://www.tetrattech-de.com)  
[www.tetrattech.com](http://www.tetrattech.com)



This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.

N:\Projects\1740000147111 LowerDarby\Data\GIS\Report December 2006\4-15 Leachate SD DibenZAHanthracene.mxd



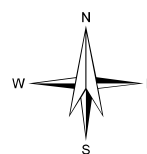
N:\Projects\T40000\T47111 LowerDarby\Data\GIS\RI\_Report\_December\_2006\4-16 SW Total Arsenic.mxd

- Non-Detect
- 0 - 3 µg/L
- 3 - 6 µg/L
- 6 - 10 µg/L

0 1,150 2,300 4,600 Feet  
1:24,000 1 inch = 2,000 feet

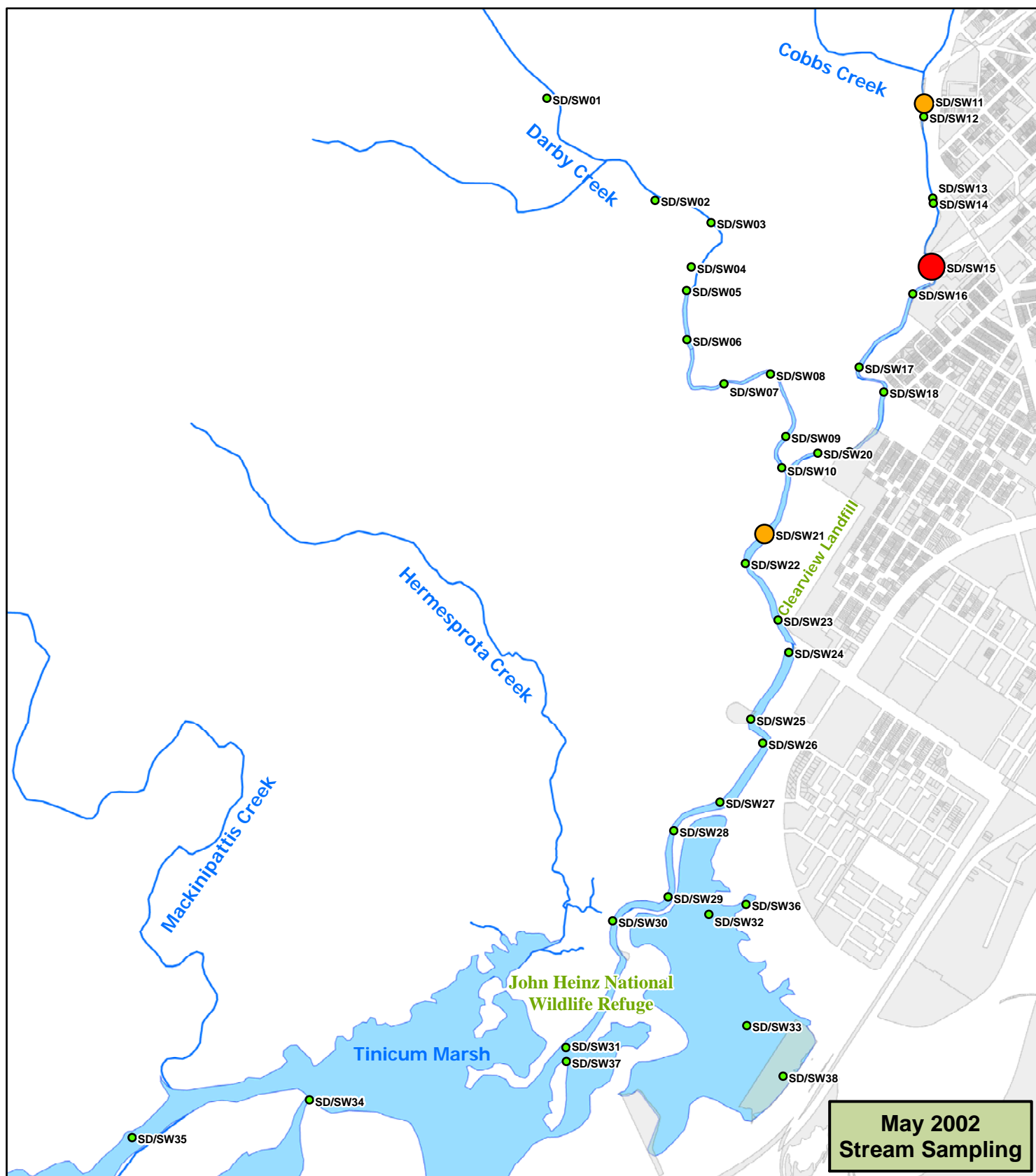


**Tetra Tech Delaware**  
Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
www.tetrattech-de.com  
www.tetrattech.com



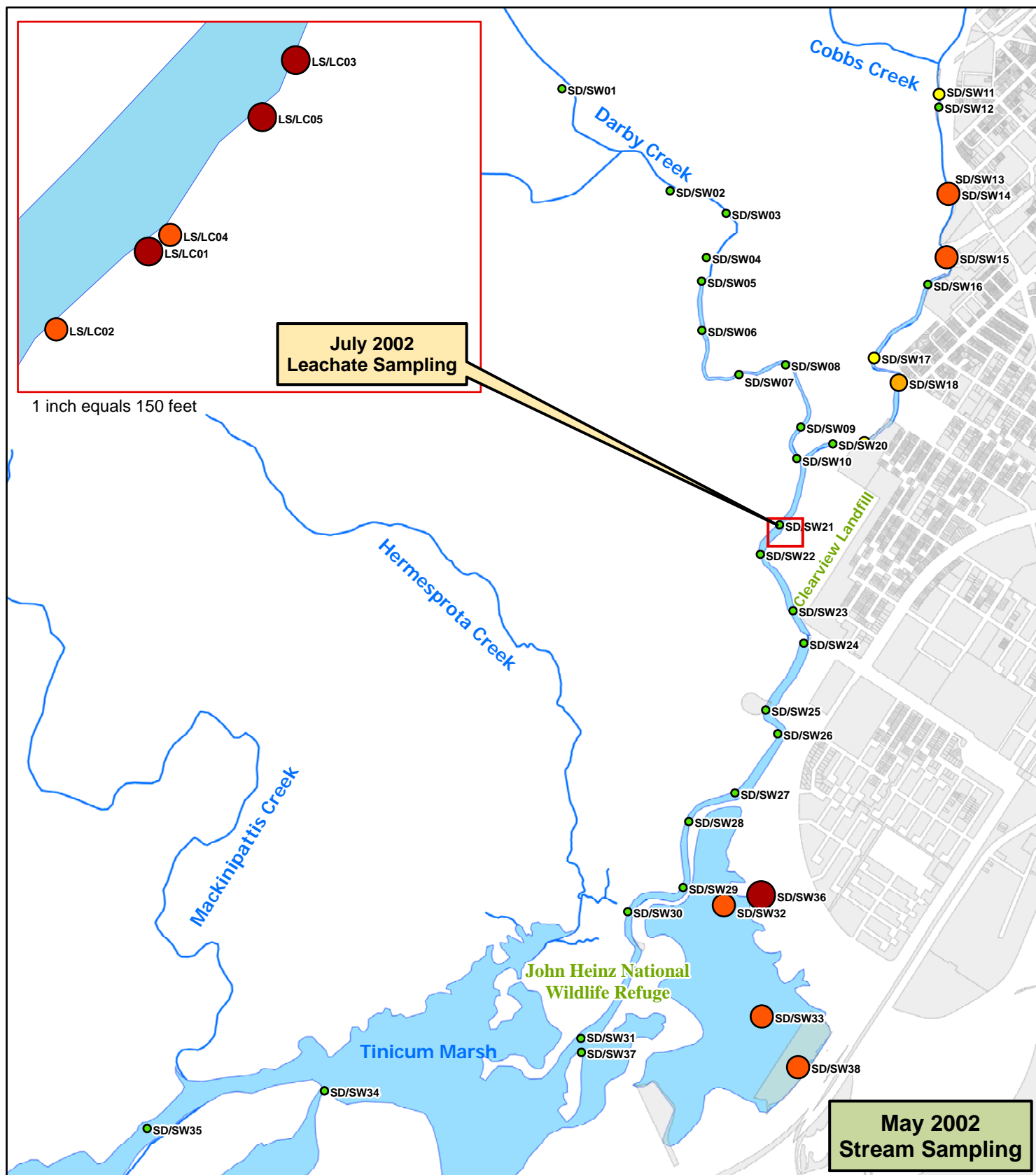
**Figure 4-16**  
Surface Water Results  
Total Arsenic µg/L  
Clearview Landfill  
Philadelphia, PA

This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



N:\Projects\T40000\T47111 LowerDarby\Data\GIS\RI\_Report\_December\_2006\4-17 SW Dissolved Arsenic.mxd





N:\Projects\T40000\T47111 LowerDarby\Data\GIS\RI\_Report\_December\_2006\4-18 SW BOD.mxd

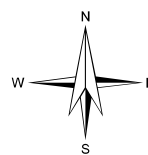
## BOD

- 0 - 5 mg/L
- 5 - 10 mg/L
- 10 - 20 mg/L
- 20 - 40 mg/L
- > 40 mg/L

0 1,000 2,000 4,000 Feet  
1:24,000 1 inch equals 2,000 feet

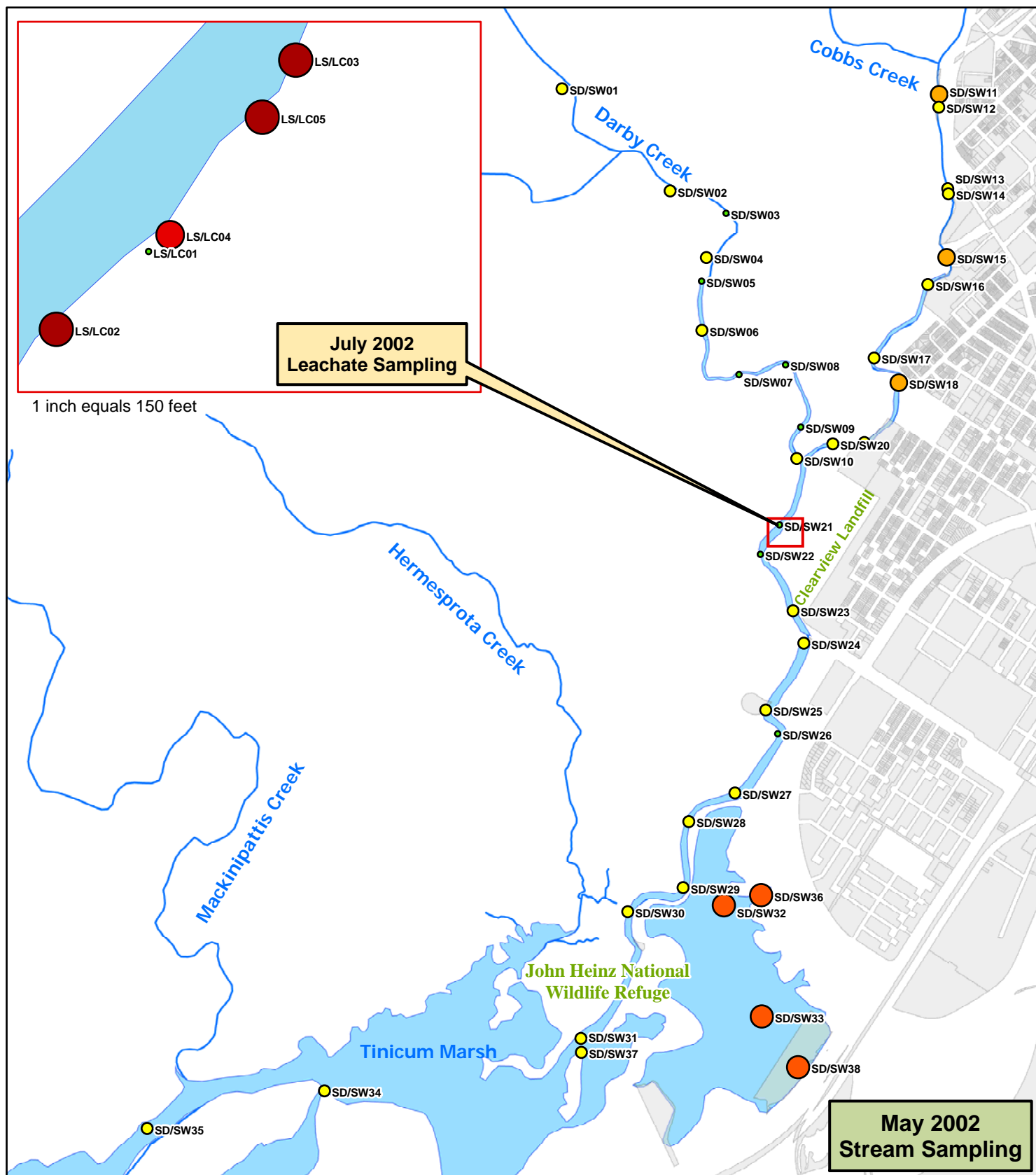


**Tetra Tech Delaware**  
Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
www.tetratech-de.com  
www.tetratech.com



**Figure 4-18**  
Surface Water/Leachate Results  
Biochemical Oxygen Demand  
Clearview Landfill  
Philadelphia, PA

This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



N:\Projects\T40000\T47111 LowerDarby\Data\GIS\RI\_Report\_December\_2006\4-19 SW COD.mxd

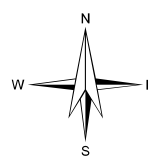
## COD

- 0 - 10 mg/L
- 10 - 50 mg/L
- 50 - 100 mg/L
- 100 - 200 mg/L
- 200 - 500 mg/L
- 500 - 2000 mg/L

0 1,000 2,000 4,000 Feet  
1:24,000 1 inch equals 2,000 feet

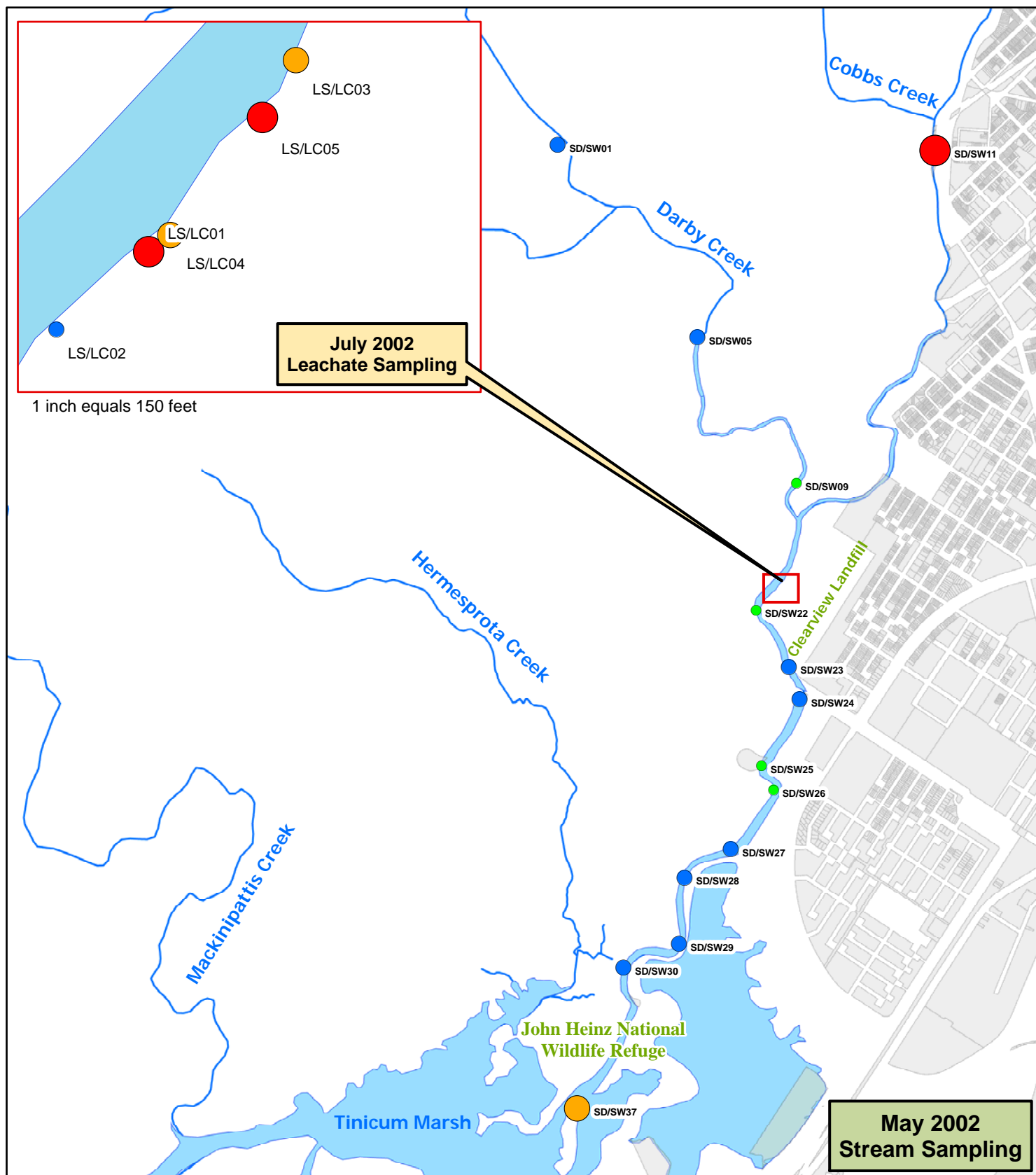


**Tetra Tech Delaware**  
Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
www.tetrattech.com  
www.tetrattech.com

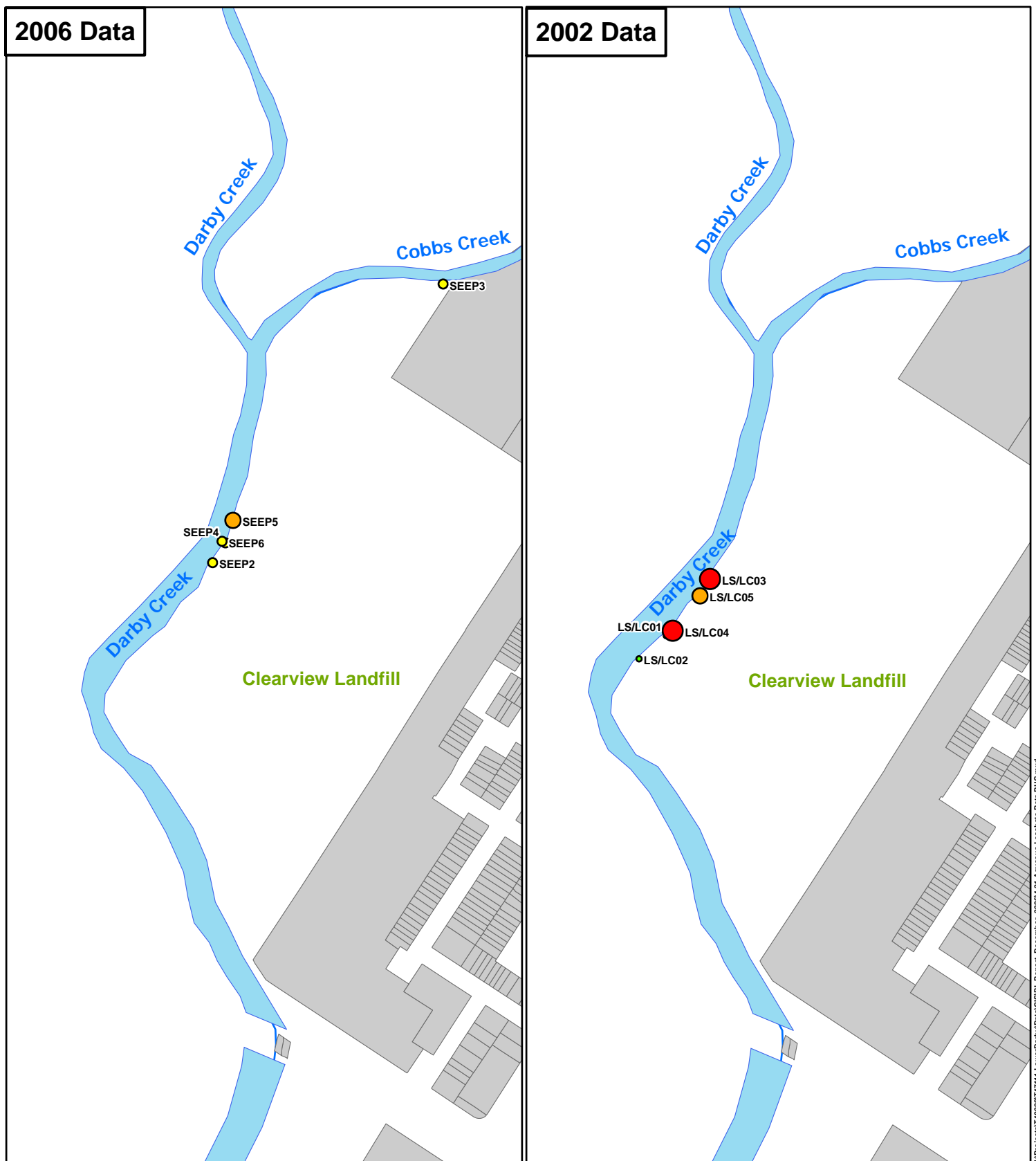


**Figure 4-19**  
Surface Water/Leachate Results  
Chemical Oxygen Demand  
Clearview Landfill  
Philadelphia, PA

This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



N:\Projects\T40000\T47111 LowerDarby\Data\GIS\RI\_Report\_December\_2006\4-20 SW E Coli.mxd



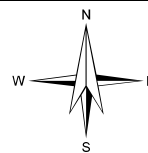
- Non-Detect
- 0 - 0.2 µg/L
- 0.2 - 0.4 µg/L
- 0.4 - 0.6 µg/L

0 250 500 1,000 ft.  
1 inch = 500 feet



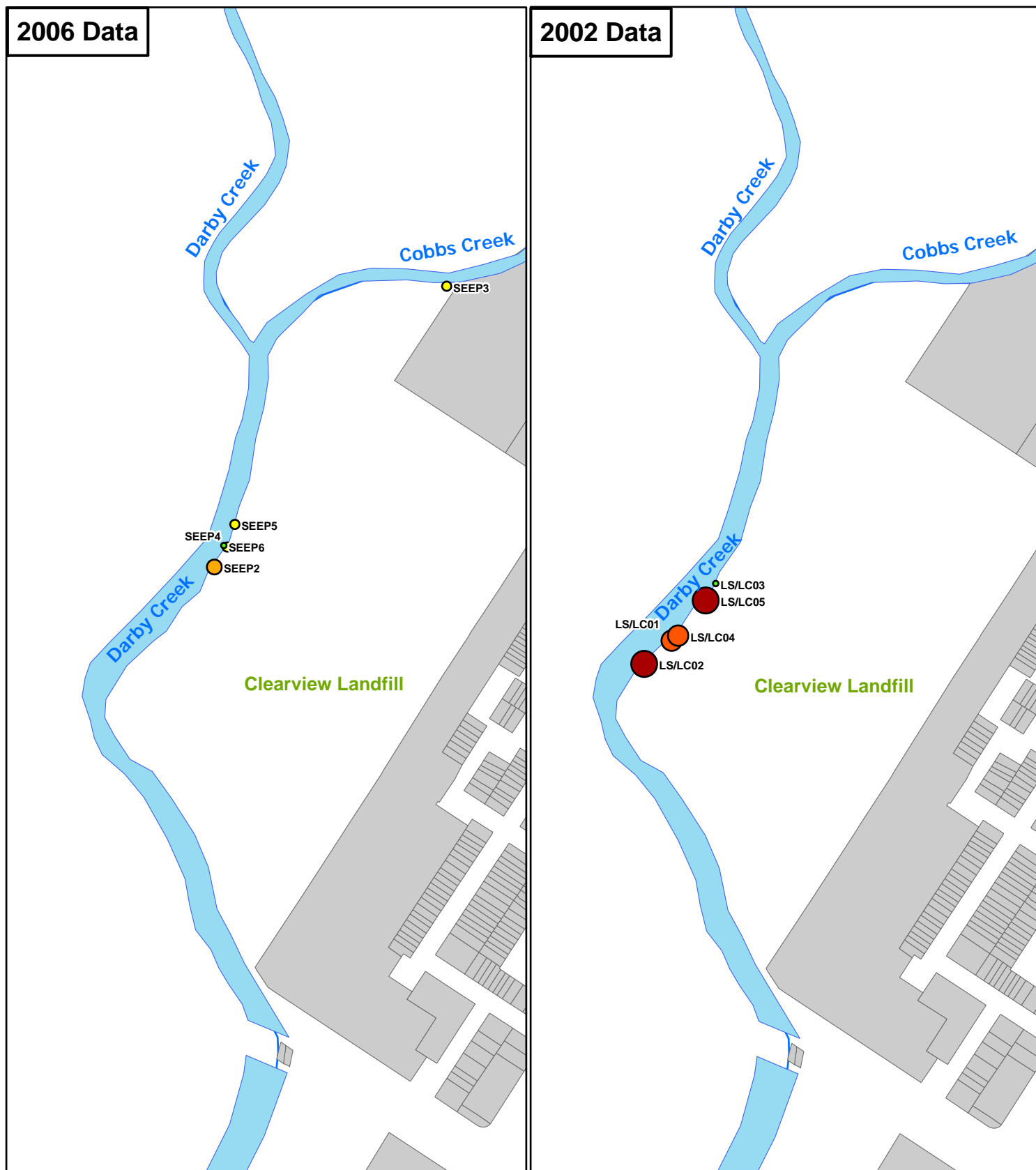
**Tetra Tech Delaware**  
Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
www.tetrattech-de.com  
www.tetrattech.com

**Figure 4-21 Aqueous Leachate Sampling Results**  
*Beta BHC, µg/L*  
2002 - 2006 Data  
Clearview Landfill  
Philadelphia, PA



This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.





- Non-Detect
- 0 - 5 µg/L
- 5 - 15 µg/L
- 15 - 30 µg/L
- 30 - 60 µg/L

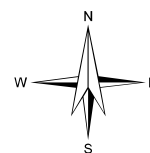
0 250 500 1,000 ft.  
1 inch = 500 feet



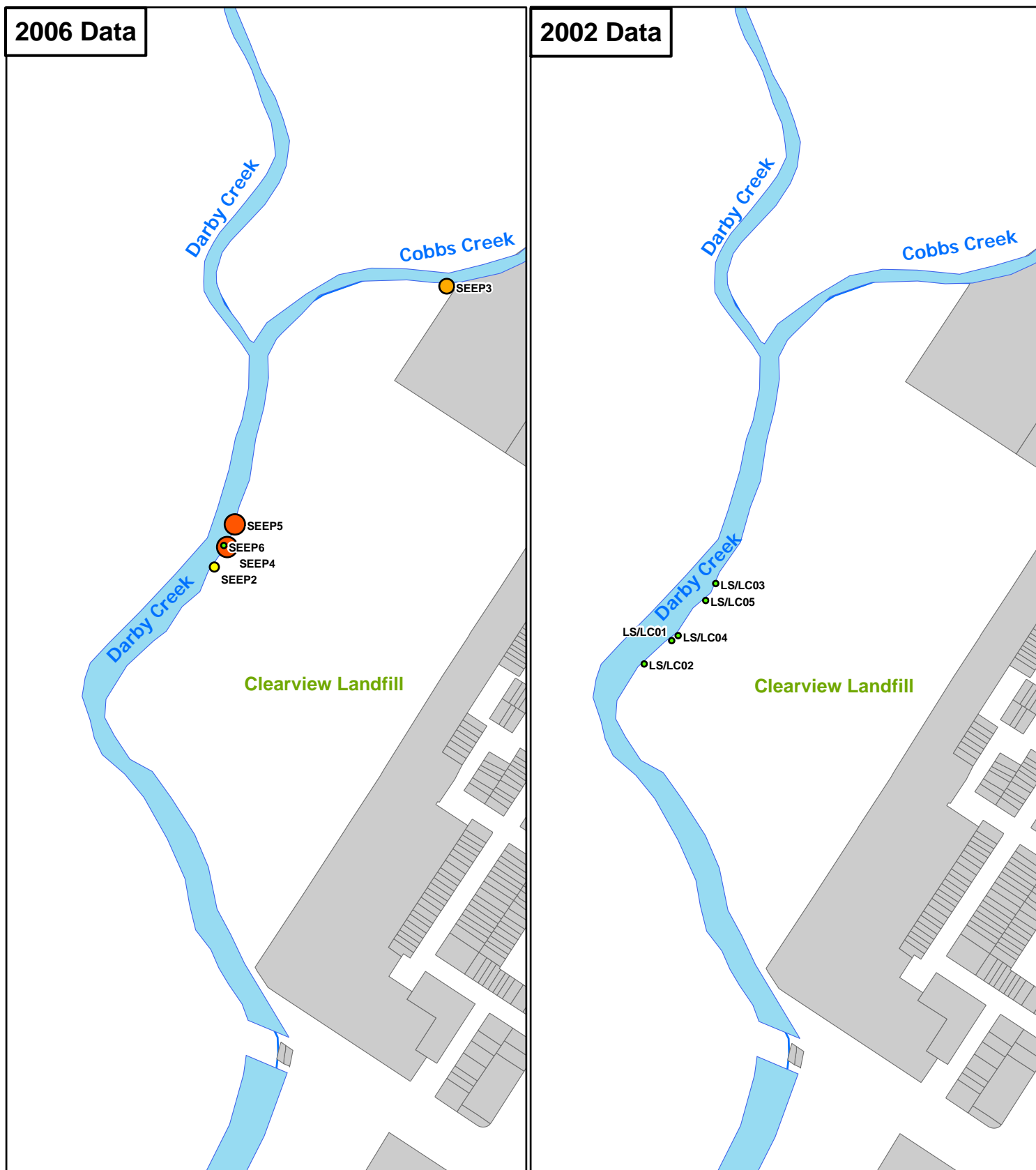
**Tetra Tech Delaware**  
Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
www.tetrattech-de.com  
www.tetrattech.com

#### Figure 4-22 Aqueous Leachate Sampling Results

Total Arsenic, µg/L  
2002 - 2006 Data  
Clearview Landfill  
Philadelphia, PA



This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



- Non-Detect
- 0 - 5 µg/L
- 5 - 15 µg/L
- 15 - 30 µg/L
- 30 - 60 µg/L

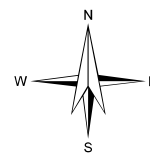
0 250 500 1,000 ft.  
1 inch = 500 feet



**Tetra Tech Delaware**  
Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
www.tetrattech-de.com  
www.tetrattech.com

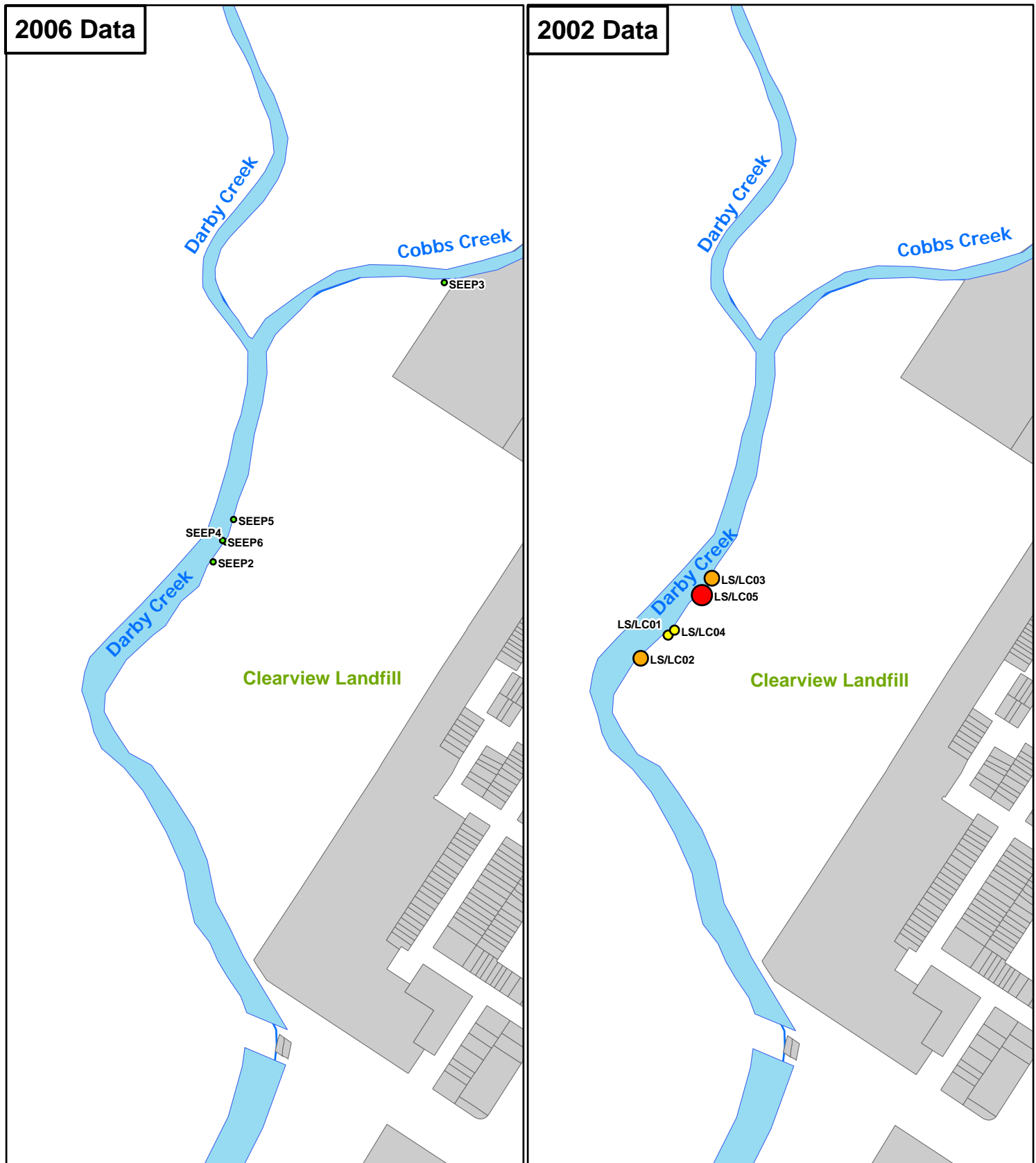
**Figure 4-23 Aqueous Leachate Sampling Results**

*Dissolved Arsenic, µg/L*  
2002 - 2006 Data  
Clearview Landfill  
Philadelphia, PA



This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.

N:\Projects\1400001\4711 Lower Darby\GIS\Report\_2006-2006-23 Aqueous Leachate Dissolved Arsenic.mxd



- 0 - 50000 µg/L
- 50000 - 100000 µg/L
- 100000 - 200000 µg/L
- 200000 - 400000 µg/L

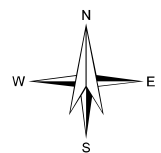
0 250 500 1,000 ft.  
1 inch = 500 feet



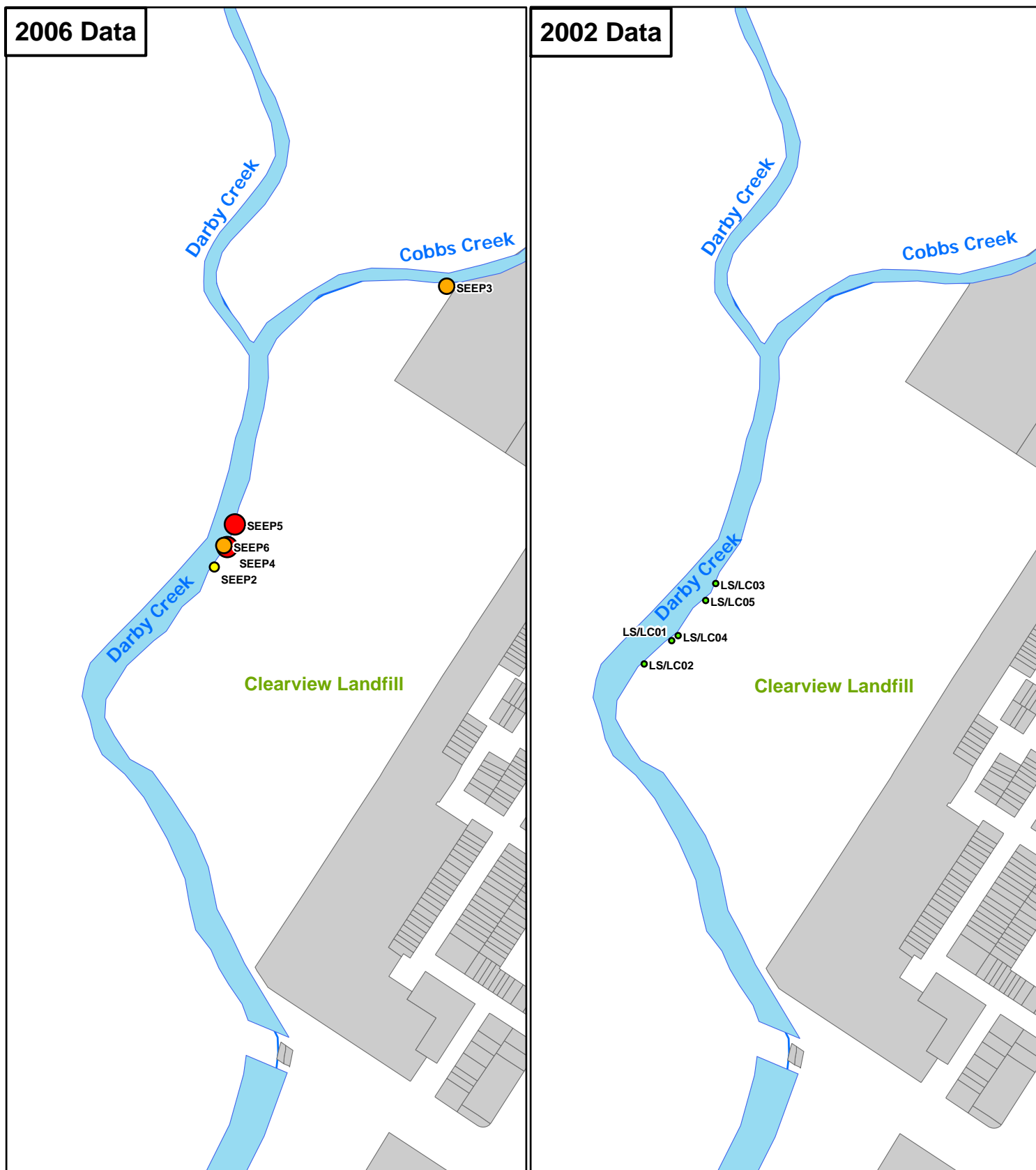
**Tetra Tech Delaware**  
Phone: (302) 738-7551  
Toll Free: (800) 462-0910  
[www.tetrattech-de.com](http://www.tetrattech-de.com)  
[www.tetrattech.com](http://www.tetrattech.com)

#### Figure 4-24 Aqueous Leachate Sampling Results

*Total Iron, µg/L*  
2002 - 2006 Data  
Clearview Landfill  
Philadelphia, PA



This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



- 0 - 1000 µg/L
- 1000 - 10000 µg/L
- 10000 - 50000 µg/L
- 50000 - 100000 µg/L

0 250 500 1,000 ft.

1 inch = 500 feet

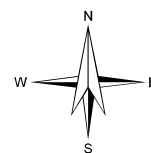


**Tetra Tech Delaware**  
 Phone: (302) 738-7551  
 Toll Free: (800) 462-0910  
[www.tetrattech-de.com](http://www.tetrattech-de.com)  
[www.tetrattech.com](http://www.tetrattech.com)

#### Figure 4-25 Aqueous Leachate Sampling Results

*Dissolved Iron, µg/L*

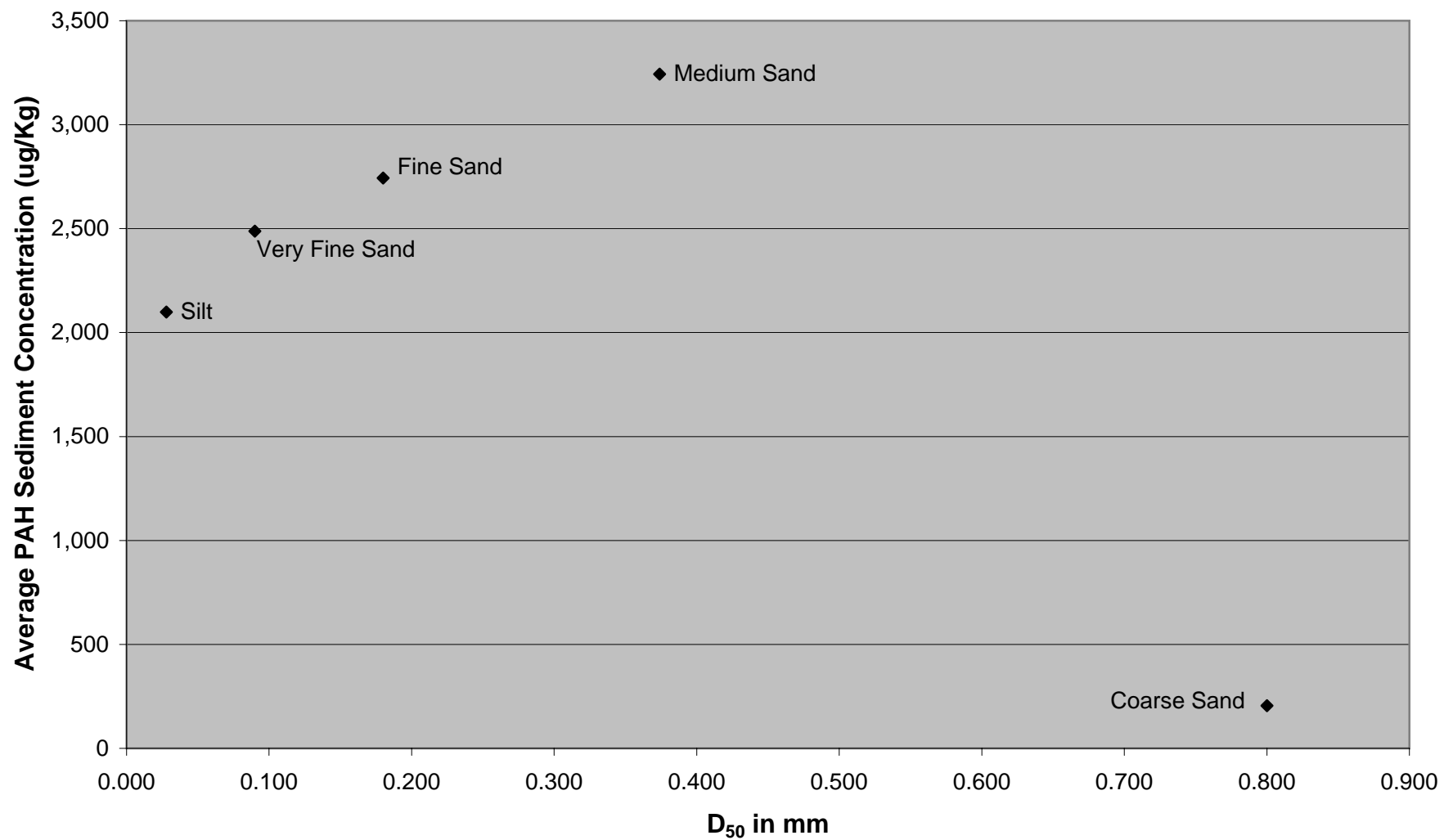
2002 - 2006 Data  
 Clearview Landfill  
 Philadelphia, PA



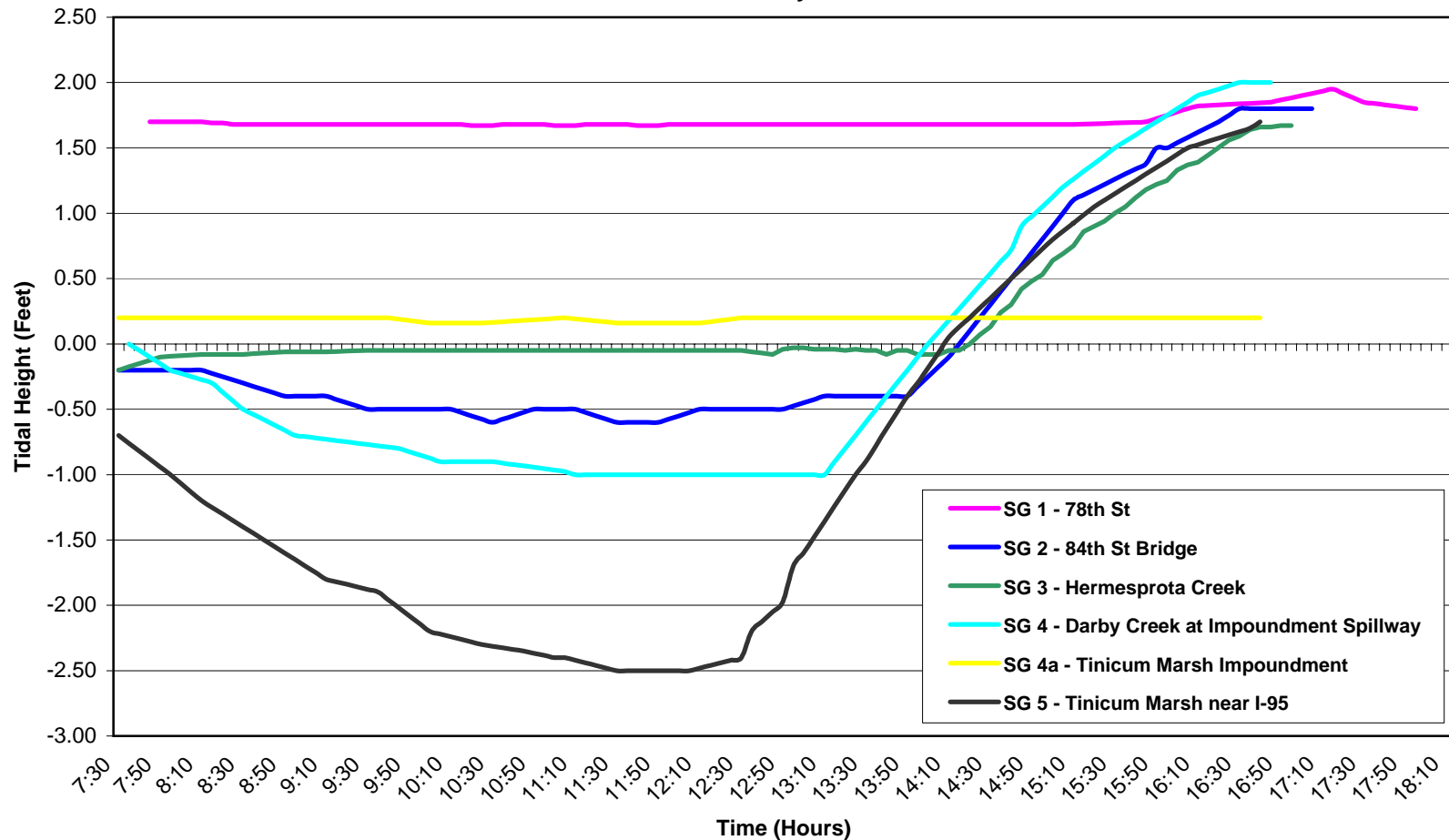
This map is provided by Tetra Tech solely for display and reference purposes and is subject to change without notice. No claims, either real or assumed, as to the absolute accuracy or precision of any data contained herein are made by Tetra Tech, nor will Tetra Tech be held responsible for any use of this document for purposes other than which it was intended.



**Figure 4-26**  
**Average Sediment PAHs Concentration in Various Grain Sizes**



**Figure 4-27**  
**Tidal Water Level at Staff Gauges**  
**(January 2003)**  
**Lower Darby Creek Area**



\* Notes: (1) Shift in minutes from Marcus Hook Staff Gage to Darby Creek  
 (2) Shift in height to convert from NGVD 29 to NAVD 88